



*Date of Application, 19th Oct., 1895—Accepted, 15th Feb., 1896*

COMPLETE SPECIFICATION.

**An Improved Process for Manufacturing a Solution Containing Sulphurous Acid for Curative Purposes.**

I, Dr. FRANZ HARTMANN, of Hallein, in the Empire of Austria, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

As known, sulphurous acid, on account of its antiseptic properties, is largely used  
5 as a curative agent in diseases of the respiratory organs, such as tuberculosis of the lungs or of the larynx, and is also applied externally for wound-dressings and in cases of diseases of the skin.

For this purpose, the sulphurous acid has been hitherto employed either directly, in the form of free sulphurous acid, in which case, however, the acid has the  
10 defect of strongly irritating the mucous membranes of the respiratory organs; or the tailings of the sulphite-cellulose works are resorted to, which contain the sulphurous acid combined, for the greatest part, with non-volatile elements, and from which the sulphurous acid can only be freed through the intervention of stronger acids, whereas, considered as free sulphurous acid, it has again the above-  
15 mentioned defect.

Now this invention has for its object to enable the use of sulphurous acid, for curative purposes, under such a form, that the unpleasant irritation of the organs of respiration, due to free sulphurous acid, is entirely obviated, without impairing the antiseptic action of the acid.

20 This result is obtained by using the sulphurous acid, not in its free state, but combined or mixed with certain volatile and aromatic substances.

According to my invention, the process for preparing the mixture containing the sulphurous acid in the above-mentioned form, consists in heating in a digester, under a pressure higher than the atmospheric pressure, portions of plants rich in  
25 aetheric oils, together with alkaline or earth-alkaline bisulphites, then in passing through a cooler the vapors developed during the aforesaid operation, with the effect of condensing said vapours.

The condensed product thus obtained in an amber-yellow liquid of pleasant aromatic smell, composed of water, aetheric oils (terpenes and camphenes) and  
30 sulphurous acid, and yeilding, when freely evaporated, a combination of sulphurous acid and volatile vegetable matter of the said description.

As instances of the plants rich in aetheric oils which may be used I may mention all the aromatic parts of pine, spruce, or fir trees, especially the needles, also the aromatic parts of eucalyptus, peppermint and juniper.

35 The cooling apparatus is to be filled with these aromatic substances and the liquid containing the bisulphites is added in a sufficient quantity to cover the surface. The proportion will vary according to the nature of the parts of the particular plants and the volume of the same. On an average it may be assumed that for about 250 parts by weight of the plants it will be sufficient to take about  
40 100 parts by weight of the solution containing about  $4\frac{1}{2}\%$  of sulphurous acid. These proportions may however be considerably varied.

The proportion of aetheric oils in the liquid prepared in that manner can, if required, be increased to any degree by addition, to the resulting liquid, of more of these oils in order to nullify any too strong action, of the sulphurous acid which  
45 may still subsist therein.

[ *Price 8d.* ]

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*Manufacturing a Solution Containing Sulphurous Acid for Curative Purposes.*

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In order to impregnate with the vapours of the described liquid the air to be inhaled, the solution is preferably caused to drizzle on pine-branches, wood shavings, or the like arranged within suitable frames, whereby the liquid, as is the case in graduation-houses, is distributed over the largest possible surface in order to facilitate its evaporation in the ambient air. 5

No distilling process is used, but the aromatic substances are boiled with the liquid and the vapors condensed.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is :— 10

A process for manufacturing a solution of sulphurous acid, and making it suitable for curative purposes, said process consisting in heating, under pressure, in closed vessels, portions of plants containing aetheric oils (terpenes, camphenes and other similar organic combinations) together with alkaline or earth-alkaline bisulphites, and condensing in coolers the resulting vapours, after which, when 15 required, the liquid thus obtained is exposed to the air, in order to impregnate the latter for inhaling purposes, substantially as described. .

Dated this 19th day of October 1895.

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London : Printed for Her Majesty's Stationery Office, by Darling & Son, Ltd.—1896

